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under the name of *Prorastomus sirenoides* in the *Quarterly Journal of the Geological Society of London*.

GEOLOGY OF NEW CALEDONIA. — In an article on the metallic mines of New Caledonia, by Rev. W. B. Clarke, besides a notice of the mines of chromic iron and nickel, there is given, in *La Revue Scientifique*, a résumé of the geology of these islands.

GEOGRAPHY AND EXPLORATION.

UNITED STATES COAST AND INTEROCEANIC SURVEYS. — The late annual report of Commodore Ammen, Chief of Bureau of Navigation, states that the work of geographically determining as many points as are supposed necessary, in Central America and in the West Indies, was prosecuted last year by the United States steamer *Fortune*, and this year by the *Gettysburg*. The longitude of Panama, Aspinwall, Santiago de Cuba, and Havana have been determined by means of the telegraph. The work now in course of completion will include points on the Windward Islands and the northern coast of South America. The survey of the outer coast of the Peninsula of Lower California, and that of the Gulf of California, had been concluded by Commander George Dewey, commanding the *Narragansett*. The gulf was previously unsurveyed, but has now been sufficiently examined and determined for the safety of navigation. Commander A. J. Mahan, commanding the *Wasp*, has made much-needed surveys at the mouth of the Rio de la Plata.

It is recommended that when a vessel can be spared for the purpose from those employed on the North Pacific Station, a running survey be made of the coast of Guatemala. This would render the surveys (of different values) continuous from Behring's Straits to Cape Horn. Since completing the lines of deep-sea soundings in the Pacific Ocean for cable purposes, another line has been run by the United States steamer *Tuscarora*, under the command of Commander Herber, from San Francisco to the Sandwich Islands, and some soundings were also made on the return of the said vessel from the Navigator Islands to Honolulu.

In regard to interoceanic surveys, this work, which has been carefully prosecuted for five seasons by two or more parties from the Isthmus of Tehuantepec to twenty or more miles south of the mouth of the Napipi, on the River Atrato, is at length satisfactorily accomplished. Since the last report a careful survey of the Isthmus of Panama has been made, the computations completed, and the whole placed before the Interoceanic Canal Commission.

THE TUNDRAS OF SIBERIA. — The prevalent idea that the plains of Siberia are frozen the year around is dispelled by Nordenskiöld in his account of his Siberian journey, to be found in *Nature*. "We were yet far north of the Arctic Circle, and as many imagine that the region we had now passed through, the so little known tundra of Siberia, is a desert waste,

either covered by ice and snow or by an exceedingly scanty moss vegetation, it is perhaps the place here to declare that this by no means is the case. On the contrary, we saw, during our passage up the Jenisei, snow only at one place, a deep valley cleft of some fathoms' extent, and the vegetation, especially on the islands which are overflowed during the spring floods, was remarkable for a luxuriance to which I had seldom before seen anything corresponding.

"The fertility of the soil and the immeasurable extent of the meadow land, and the richness of the grass upon it, had already called forth from one of our hunters, a middle-aged man, who is owner of a little patch of land between the fells in Northern Norway, a cry of envy of the splendid land our Lord had given 'the Russian,' and of astonishment that no creature pastured, no scythe mowed the grass. Daily and hourly we heard the same cry repeated, though in yet louder tone, when we some weeks later came to the lofty old forests between Jeniseisk and Turuchansk, or to the nearly uninhabited plains on the other side of Krasnojarsk, covered with deep *tshornosem* (black earth), in fertility certainly comparable to the best parts of Scania, in extent exceeding the whole of the Scandinavian peninsula. This direct expression of opinion by a veritable if unlearned agriculturist may perhaps not be without interest in judging of the future of Siberia."

THE SWEDISH EXPEDITION TO NOVAYA ZEMLYA. — In our last number we gave some account of Nordenskiöld's expedition. His ship, the *Pröven*, which he placed under the command of Dr. Kjellman, has returned to Norway. *Nature* reports that the party found an abundance of marine vegetation in the Kara Sea, which has been hitherto thought to be remarkably destitute of vegetable life. "We have," the letter to the Stockholm daily paper concludes, "during this summer sailed over known and unknown seas more than six thousand (English) miles; we have visited regions whither expeditions for more than three hundred years have attempted in vain to come; we have made rich collections in all departments of natural science." Nordenskiöld, who is the distinguished professor at the Royal Swedish Academy of Stockholm, reached St. Petersburg on the 17th of November, having journeyed overland from the mouth of the Jenisei River. An account of his journey appears in *Nature* for December 2d.

THE KYBALE RACE. — An exhaustive monograph of this people (*La Kybalie et les Coutumes Kabyles*), in three large octavo volumes, by MM. A. Hanoteau and A. Letourneau, has been noticed in successive numbers of the *Revue Scientifique*. These Kybales are the descendants of the ancient Numidians, and their country forms a part of Algeria.

PICTURES OF YÜNNAN. — Under this title F. Garnier has published a work on this inland province of China, abstracts of which, with fine views of the striking scenery of the country and the people, are appearing in *Globus*, a weekly German journal of travel.

MEXICAN MIGRATIONS. — At the Exposition Internationale de Géographie held at Paris last year, Professor Quatrefages exhibited an unpublished map illustrating the migrations of the Mexicans.

MICROSCOPY.¹

AMATEUR MICROSCOPES. — The notorious success of Mr. Wenham, the late Mr. John Williams, and some other microscopists, in preparing their own apparatus, is exceptional only by reason of the degree of excellence attained. It is especially true of microscopists that they love the instruments they work with, and from this love follows not only the partially unfortunate "test-object fever," but also the eminently useful habit of studying, adapting, altering, and finally manufacturing accessories, if not instruments, suited to their needs and fancies. Such amateur work not only is the best possible drill in the science of the microscope, but also has added very largely to the development of the microscope of to-day. The European journals are full of interesting and profitable results from such work; while the readers of the *NATURALIST* have long been familiar with the contrivances and original constructions of a considerable number of American workers. Most microscopists, however, have confined their attempts to the production of accessories, believing, very judiciously, that the microscope as a whole could be more successfully made by more experienced hands. Of the comparatively few home-made microscopes, two recently published forms may serve as examples of the two extremes of ultra simplicity on the one hand and the best attained success on the other. In the form contrived by Mr. John Phin and described in his *Practical Hints*, the body consists of a tube of stiff writing-paper rolled several times around itself, pasted at the outer edge, and blackened on the inside. This tube slides, for focal adjustment, through another paper tube. A piece of looking-glass serves as mirror, and a demolished cigar box furnishes wood enough to make the remainder of the stand. A simple half-inch lens acts as objective, and a similar lens of two-inch focus constitutes the ocular or eyepiece. The lenses are held in place in the tube by means of the bottoms of pill boxes perforated to allow the passage of light, while similarly perforated pill boxes are placed in the tube in proper position to act as diaphragms to reduce aberration by cutting off stray light. Such a microscope, at a cost of fifty cents, is conceded to be too imperfect to use for scientific study or even for instructive amusement, its utility being not in the using but in the making of it. It is believed that a student by actually constructing such an instrument would gain a very clear idea of the essential parts of the microscope, as well as a good understanding of the faults of simple work and uncorrected lenses.

The more elaborate instrument referred to is described by Mr. John

¹ This department is conducted by DR. R. H. WARD, Troy, N. Y.